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Junichi Hibino

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EXAMINER

LEURIG, SHARLENE L

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,023

Applicant(s)

HIBINO ET AL.

Examiner

Sharlene Leurig

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 18, 19, 27, 28, 32 and 34-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-14, 18, 19, 27, 28, 32 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 9 and 39-41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 122704.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on December 27, 2004 has been entered and acknowledged by the examiner.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the method embodiment in which the dielectric material contains gap members during the dielectric application process, as recited in claim 32, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 12, 13, 19 and 27 stand rejected under 35 U.S.C. 102(b) as being anticipated by Murai et al. (JP 10-302645) (of record).

Regarding claim 1, Murai discloses a gas discharge panel comprising a first and second substrate (Figure 1, elements 1 and 2) facing each other across an interval filled with discharge gas (paragraph 0014 line13), pairs of electrodes for sustaining discharge provided on at least one of the substrates (5 and 6), a plurality of discharge cells formed in a pattern along the electrode pairs (area between columns 11), and a plurality of phosphor layers (9) provided on the first substrate facing the discharge cells, each phosphor layer corresponding to an illumination color of the discharge cell, and the gas discharge panel displaying a color image by selectively illuminating the discharge cells, wherein a plurality of gap members (11) of a given shape are disposed at locations corresponding to boundary areas between and excluding the center areas of the

discharge cells so as to separate the first and second substrates and determine the interval between them.

The Examiner notes that the claim limitation of the phosphor layers being formed by baking a phosphor film is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Regarding claim 2, Murai discloses a gas discharge panel wherein the electrode pairs and their surrounding structures are provided such that when a voltage is applied to the electrode pairs and sustaining discharge is caused, discharge primarily occurs in the center of the discharge cells, rather than near the boundaries. Murai discloses in paragraph 0019 the tendency of the plasma discharge to propagate in the center of the discharge cell, away from the metallic gap members. Figure 3 also shows the plasma discharge (15) at the center of the discharge cell.

Regarding claim 12, a phosphor element (9) is applied to the surface of the gap members (11).

Regarding claim 13, the gap members have a rod-like shape, where "rod-like" is interpreted as being any shape that is long and thin.

Regarding claim 19, the gas discharge panel is made in a series of steps comprising a phosphor layer forming process (paragraph 0014, lines 9-11) where the phosphor layer corresponds to an illumination color of each discharge cell and is formed

on the first substrate (2), a gap member distribution process (paragraph 0013, lines 3-7), for disposing members (11) of a given shape at locations on the first substrate or the second substrate corresponding to boundaries between discharge cells, and a stacking process for joining the first substrate and the second substrate after gap members have been applied to one of the substrates (0017, lines 1-2).

Regarding claim 27, the gap member distribution process includes an adhesive layer forming step for providing an adhesive layer in areas of the first or second substrate corresponding to the boundaries and a gap member distribution step for spreading gap members over the adhesive layer (paragraph 0013).

5. Claims 1-4, 12-14, 18, 19 and 32 stand rejected under 35 U.S.C. 102(b) as being anticipated by Amemiya et al. (5,742,122) (of record).

Regarding claim 1, Amemiya discloses a gas discharge panel comprising a first and second substrate (Figure 2, elements 1 and 2) facing each other across an interval filled with discharge gas (column 5, lines 65-67), pairs of electrodes for sustaining discharge provided on at least one of the substrates (S), a plurality of discharge cells formed in a pattern along the electrode pairs (column 5, line 17), and a plurality of phosphor layers (11) provided on the first substrate facing the discharge cells so that the gas discharge panel displays a color image, wherein a plurality of gap members (31) of a given shape are disposed at locations corresponding to boundary areas between and excluding the center areas of the discharge cells so as to separate the first and second substrates and determine the interval between them.

The Examiner notes that the claim limitation of the phosphor layers being formed by baking a phosphor film is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Regarding claim 2, Amemiya discloses a gas discharge panel wherein the electrode pairs and their surrounding structures are provided such that when a voltage is applied to the electrode pairs and sustaining discharge is caused, discharge primarily occurs in the center of the discharge cells. Amemiya discloses discharge gaps "G" "for centers of emission regions", where protruding portions of electrodes are located (column 4, lines 63-65). The protruding portions are the origins of discharge and are located at the center of the emission regions, otherwise known as discharge cells. Therefore the discharge primarily occurs in the center of the discharge cells.

Regarding claim 3, the electrode pairs (S) comprise a plurality of linear electrodes, provided in a stripe pattern on the second substrate (1), and an interval between the linear electrodes forming the pairs is smaller in the center of the discharge cells than toward the boundaries of the discharge cells. The protruding portions are included in the unit cell (column 5, lines 14-17). The protruding portions of the electrodes (S) are located at the center of the cells (column 4, lines 59-65), as discussed above. Figure 2 shows the non-protruding or recessed portion of the electrode pair to be located near the boundaries of the discharge cells. Therefore the

interval between the electrodes is smaller in the center of the discharge cells (where the protruding portions of the electrodes are located) than toward boundaries.

Regarding claim 4, each electrode pair has a transparent electrode ("S") having protruding portions (7). The transparent electrode has a shape such that an interval between the linear electrodes forming the pair is smaller in the center of the discharge cell than toward the boundaries of the discharge cell, following the argument discussed above.

Regarding claim 12, a phosphor element (11) is applied to the surface of the gap members (31). The phosphor element is in contact with the gap member, and is therefore interpreted as being applied to the gap member.

Regarding claim 13, the gap members have a rod-like shape, where "rod-like" is interpreted as being any shape that is long and thin.

Regarding claim 14, the gap members (31) are disposed directly on and are contacting the first substrate (2).

Regarding claim 18, the gas discharge panel also includes a driving unit, which applies a voltage to the electrode pairs for sustaining discharge (column 3, line 49).

Regarding claim 19, the gas discharge panel is made by a process including a phosphor layer forming process (column 9, lines 9-12) for providing a phosphor layer corresponding to an illumination color of each discharge cell on the first substrate, a gap member distribution process (column 9, lines 1-8), for disposing gap members of a given shape at locations on the first substrate or the second substrate (column 7, line 65) corresponding to boundaries between discharge cells, and a stacking process

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(column 9, lines 17-22) for joining the first and second substrates after gap members have been applied to one of the substrates.

Regarding claim 32, Amemiya discloses a method for production of a gas discharge panel, comprising an electrode forming process (column 8, lines 9-32) for forming electrodes on a first substrate, a dielectric element material application process, for applying a dielectric element material to cover the electrodes (column 8, lines 33-35), wherein the dielectric element material contains gap members (column 7, lines 52-54; column 8, lines 48-53), a dielectric element baking process, for baking the applied dielectric element (column 8, lines 53-55), and after the dielectric element material application process, a stacking process, for joining the first substrate to the second substrate (column 9, lines 17-22). The black pigment within the dielectric material may be considered to be gap members, as it is present in the gaps between the dielectric molecules.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 8, 10 and 18 stand rejected under 35 U.S.C. 102(e) as being anticipated by Aoki et al. (6,369,501) (of record).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Aoki discloses a gas discharge panel comprising a first and second substrate (Figure 25, elements 15 and 11) facing each other across an interval filled with discharge gas, pairs of electrodes for sustaining discharge provided on at least one of the substrates (12), a plurality of discharge cells formed in a pattern along the electrode pairs, and a plurality of phosphor layers (18) provided on the first substrate facing the discharge cells so that the gas discharge panel displays a color image, wherein a plurality of gap members (17) of a given shape are disposed at locations corresponding to boundary areas between and excluding the center areas of the discharge cells so as to separate the first and second substrates and determine the interval between them.

The Examiner notes that the claim limitation of the phosphor layers being formed by baking a phosphor film is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Regarding claim 8, the phosphor layers are thinner toward the boundaries than in the center areas.

Regarding claim 10, the electrode pairs comprise a plurality of linear electrodes (column 6, line 57 to column 8, line 5) provided in a stripe pattern on the second substrate, and the phosphor layers are provided in a strip pattern (column 6, line 57 to column 8, line 5) in a direction which intersects with the electrode pairs.

Regarding claim 10, the electrode pairs (12) comprise a plurality of linear electrodes provided in a stripe pattern on the second substrate (1) and the phosphor layers (11) are provided in a stripe pattern in a direction that intersects with the electrode pairs.

Regarding claim 18, the gas discharge panel is connected to a driving circuit (Figure 3) which applies voltage to the electrode pairs for sustaining discharge.

8. Claim 32 stands rejected under 35 U.S.C. 102(e) as being anticipated by Kanagu et al. (6,538,380) (of record).

Kanagu discloses a method for production of a gas discharge panel, comprising an electrode forming process, for forming electrodes (Figure 6, element A) on a substrate (21), a dielectric element material application process, for applying dielectric element material (29) to cover the electrodes, wherein the dielectric element material contains gap members (column 6, lines 12-14), a dielectric element baking process (column 8, lines 54-56), for baking the applied dielectric element and after the dielectric element material application process, a stacking process for joining the first substrate to

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the second substrate. The coloring pigment within the dielectric material (29) may be considered to be gap members, as it is present in the gaps between the dielectric molecules.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 12-14 and 19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of the prior art.

The prior art disclosed by the applicant comprises a first and second substrate (Figure 15, elements 111 and 120) facing each other across an interval filled with discharge gas (page 2, line 8), pairs of electrodes for sustaining discharge provided on at least one of the substrates (page 3, lines 4-5), a plurality of discharge cells (140) formed in a pattern along the electrode pairs, and a plurality of phosphor layers (131) provided on the first substrate facing the discharge cells so that the gas discharge panel displays a color image, wherein a plurality of barrier ribs (124) of a given shape are disposed at locations corresponding to boundary areas between and excluding the center areas of the discharge cells so as to separate the first and second substrates and determine the interval between them.

The prior art features barrier ribs. However, barrier ribs are fully functionally equivalent to gap members in delineating the boundaries of a discharge cell and preventing cross-talk between the cells.

The Examiner notes that the claim limitation of the phosphor layers being formed by baking a phosphor film is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the prior art gas discharge display with gap members rather than barrier ribs to fulfill the same function of separating discharge spaces within the display.

Regarding claim 12, a phosphor element (131) is applied to the surfaces of the barrier ribs functioning as gap members (124).

Regarding claim 13, the barrier ribs functioning as gap members have a rod-like shape, where "rod-like" is interpreted as being any shape that is long and thin. The barrier ribs of the admitted prior art are long in the direction along the discharge cells and are thin compared to the discharge cells, and are therefore interpreted as being "rod-like".

Regarding claim 14, the barrier ribs functioning as gap members (124) are disposed on the first substrate (120) via the dielectric layer (123).

Regarding claim 19, the gas discharge panel of the applicant's admission of the prior art is made in a series of steps comprising a phosphor layer forming process (page 4, lines 8-10) where the phosphor layer corresponds to an illumination color of each discharge cell, red, green or blue (Figure 15, 131 R, G, B) and is formed on the first substrate (120), a gap member distribution process (page 4, lines 1-7), for disposing members of a given shape at locations on the first substrate or the second substrate corresponding to boundaries between discharge cells (Figure 15, element 124), and a stacking process for joining the first substrate and the second substrate after gap members have been applied to one of the substrates (page 4, lines 11-16).

The prior art features barrier ribs. However, barrier ribs are fully functionally equivalent to gap members in delineating the boundaries of a discharge cell and preventing cross-talk between the cells.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the prior art gas discharge display with gap members rather than barrier ribs to fulfill the same function of separating discharge spaces within the display.

11. Claim 5 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Murai et al. (JP 10-302645) (of record) in view of Ha et al. (6,252,353) (of record).

Murai discloses a gas discharge panel with all the limitations of claims 1 and 2, including an electrode pair covered with a dielectric layer in an area toward a discharge

space, but lacks a dielectric layer with a thickness that is smaller toward the center of the discharge cell than toward the boundaries.

Ha teaches the formation of a dielectric layer (Figure 8a, element 105b) over an electrode pair wherein the thickness of the dielectric layer is less toward the center of the discharge cell in order to provide a large enough discharge space for charged particles to disperse.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Murai's gas discharge panel with a dielectric layer with a thickness smaller toward the center of the discharge cell than toward the boundaries in order to increase the size of the discharge space to increase the dispersion of charged particles, as taught by Ha.

12. Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (5,742,122) (of record) in view of Yoshioka (JP 03-233829) (of record).

Amemiya discloses a gas discharge panel with all the limitations of claims 1 and 2, including a layer of magnesium oxide (24) formed over the dielectric layer, but lacks a magnesium oxide layer that is not formed over the boundary area.

Yoshioka teaches the construction of a discharge panel with a protective layer of MgO that is excluded from the boundary areas (Figure 3B, element 4). The boundary area is defined as being the lateral area outside of the fluorescent layer (6).

Therefore regarding claim 6, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Amemiya's gas discharge panel having a

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continuous MgO layer with an MgO layer not formed in the boundary areas so as to save cost by providing a protective layer only in the discharge cell.

13. Claims 7 and 35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Murai et al. (JP 10-302645) (of record) in view of Osawa et al. (5,892,492) (of record).

Regarding claim 7, Murai discloses a gas discharge panel with all the limitations of claim 1.

Regarding claim 35, Murai discloses a gas discharge panel with all the limitations of claim 2.

Murai lacks a black matrix formed in the boundary areas of the panel.

Osawa teaches a black matrix (7) formed over the boundary areas of the panel opposite the phosphor layers (5) to decrease undesirable reflection of ambient light from faces of the gap members.

Therefore regarding claims 7 and 35, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Murai's display panel with a black matrix formed on the second substrate in the boundary areas to improve the visibility of the display, as taught by Osawa.

14. Claims 7 and 35-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (5,742,122) (of record) in view of Osawa et al. (5,892,492) (of record).

Regarding claim 7, Amemiya discloses a gas discharge panel with all the limitations of claim 1, including a blackened dielectric layer on the second substrate to improve the visibility of the display.

Regarding claim 35, Amemiya discloses a gas discharge panel with all the limitations of claim 2, including a blackened dielectric layer on the second substrate to improve the visibility of the display.

Regarding claim 36, Amemiya discloses a gas discharge panel with all the limitations of claim 3, including a blackened dielectric layer on the second substrate to improve the visibility of the display.

Regarding claim 37, Amemiya discloses a gas discharge panel with all the limitations of claim 4, including a blackened dielectric layer on the second substrate to improve the visibility of the display.

Amemiya lacks a black matrix formed in the boundary areas of the panel.

Osawa teaches a black matrix (7) formed over the boundary areas of the panel on the substrate opposite the phosphor layers (5) in order to decrease undesirable reflection of ambient light from faces of the gap members.

Therefore regarding claims 7, 35 and 37, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Amemiya's display panel with a black matrix formed in the boundary areas to improve the visibility of the display, as taught by Osawa.

15. Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Murai et al. (JP 10-302645) (of record) in view of Shinoda et al. (JP 60-107233) (of record).

Murai discloses a gas discharge panel with all the limitations of claim 1, including gap members (11) adhered to dielectric layers (7 and 8) via adhesive (12) and a phosphor layer (9) formed on a dielectric layer.

Murai lacks gap members partially buried in dielectric layers.

Shinoda teaches the partial embedding of gap members (4) in holes made in the dielectric layer (3) (page 154, column 2) to secure the gap members.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Murai's discharge panel with gap members partially embedded in the dielectric layer provided on the second substrate in order to better secure the gap members and provide more stability to the display panel.

16. Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Murai et al. (JP 10-302645) (of record) in view of Amemiya et al. (5,742,122) (of record).

Murai discloses a gas discharge panel with all the limitations of claim 1 but lacks explicit disclosure of a driving unit to provide current to the electrodes.

Amemiya teaches a gas discharge display device having a gas discharge panel connected to a driving unit, which applies a voltage to the electrode pairs for sustaining discharge (column 3, line 49).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Murai's gas discharge panel with a driving unit to provide a gas discharge display device, as taught by Amemiya.

17. Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admission of the prior art as applied to claim 1 above, and further in view of Amemiya et al. (5,742,122) (of record).

The applicant's admission of the prior art discloses a gas discharge panel with all the limitations of claim 1 but lacks explicit disclosure of a driving unit to provide current to the electrodes.

Amemiya teaches a gas discharge display device having a gas discharge panel connected to a driving unit, which applies a voltage to the electrode pairs for sustaining discharge (column 3, line 49).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the gas discharge panel of the applicant's admission of the prior art with a driving unit to provide a gas discharge display device, as taught by Amemiya.

18. Claims 19, 27, 28 and 34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Miyahara (JP 01-183029) (of record) in view of Murai et al. (JP 10-302645) (of record).

Regarding claim 19, Miyahara discloses a method of making a gas discharge panel comprising a gap member distribution process (Abstract Constitution lines 7-13), for disposing gap members of a given shape at locations on the first substrate or the second substrate corresponding to boundaries between discharge cells, and a stacking process for joining the first and second substrates after gap members have been applied to one of the substrates. Miyahara lacks a phosphor application process.

Murai teaches the application of phosphors to the display (paragraph 0014, lines 9-11).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Miyahara's gas discharge panel manufacture process with a phosphor application process in order to provide a color display panel, as taught by Murai.

Regarding claim 27, Miyahara discloses an adhesive layer forming step (Abstract Constitution lines 3-4; element 5) to provide adhesive in areas of the substrate corresponding to boundaries, and a gap member distribution step for spreading gap members over the adhesive layer (Abstract Constitution lines 7-13).

Regarding claim 28, Miyahara discloses a gap member distribution process including after the gap member distribution step a removal step for removing the gap members located in areas of the substrate other than on the adhesive layer (5) (Abstract Constitution lines 7-13).

Regarding claim 34, Miyahara discloses a removal step where the gap members are removed by agitating the substrate to which the gap members were applied (Abstract Constitution lines 9-12).

19. Claim 38 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Murai et al. (JP 10-302645) (of record) in view of Ha et al. (6,252,353) (of record) as applied to claim 5 above, and further in view of Osawa et al. (5,892,492) (of record).

Murai discloses a plasma display panel having all the limitations of claim 1.

Murai lacks a dielectric layer with a thickness that is smaller toward the center of the discharge cell than toward the boundaries.

Ha teaches the formation of a dielectric layer (Figure 8a, element 105b) over an electrode pair wherein the thickness of the dielectric layer is less toward the center of the discharge cell in order to provide a large enough discharge space for charged particles to disperse.

Both Murai and Ha fail to exemplify a black matrix formed in the boundary areas on the second substrate.

Osawa teaches a black matrix (7) formed over the boundary areas of the panel opposite the phosphor layers (5) to decrease undesirable reflection of ambient light from faces of the gap members.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the of the invention to modify Murai's gas discharge panel with a dielectric layer with a thickness smaller toward the center of the discharge cell than toward the boundaries

in order to increase the size of the discharge space to increase the dispersion of charged particles, as taught by Ha, and to further modify it to have a black matrix formed on the second substrate in the boundary areas to improve the visibility of the display, as taught by Osawa.

Allowable Subject Matter

20. Claims 9 and 39-41 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. The statement of reasons for the indication of allowable subject matter can be found in the office action of September 21, 2004.

Response to Arguments

22. Applicant's arguments filed December 27, 2004 have been fully considered but they are not persuasive.

Applicant argues that the Murai reference fails to teach or suggest gap members to define the interval between the first and second substrates. Rather, the applicant argues, Murai teaches barrier ribs (pages 9 and 10).

However, the barrier ribs of Murai are disposed at locations corresponding to boundaries between and excluding the centers of the discharge cells, separate the first and second substrates and furthermore define the interval between the substrates (Figure 1). The applicant's claims do not structurally differentiate the gap members of

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the claimed invention from the barrier ribs of Murai. Therefore the examiner maintains the rejection of record.

Applicant argues that the Amemiya reference fails to teach or suggest gap members as disclosed in the present application (page 10).

However, the barrier ribs of Amemiya are disposed at locations corresponding to boundaries between and excluding the centers of the discharge cells so as to separate the first and second substrates and furthermore define the interval between the substrates. The applicant's claims do not structurally differentiate the gap members of the claimed invention from the barrier ribs of Amemiya. Therefore the examiner maintains the rejection of record.

Applicant further argues that the references of the prior art of record "can't possibly provide a plurality of phosphor layer formed by baking of phosphor film and provided on the first substrate facing the discharge cells, each phosphor layer corresponding to an illumination color of the discharge cell" (page 11) because the phosphor layers are formed with bowl-like profiles within the barrier ribs and then are baked. The examiner believes this argument to be directed to the product-by-process limitation in claim 1. The examiner disagrees with the applicant's argument. There is no structural difference between the PDP of claim 1 and the PDPs of the references of the prior art.

The applicant further argues with respect to claim 19 that the references of the prior art fail to teach or suggest a method of making a gas panel involving the steps of "disposing gap members **after** forming a phosphor layer" (page 11, emphasis added by

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examiner). This limitation is not recited in claim 19 and therefore cannot be relied upon to overcome the rejections of record.

.Applicant further argues with respect to claim 32 that the references of the prior art fail to teach or suggest a method of making a gas panel involving the steps of applying a dielectric material to cover the electrodes, the dielectric material containing gap members (pages 11 and 12).

Examiner disagrees and directs applicant to the Amemiya and Kanagu references, which both teach the dielectric layers to contain coloring pigments which may be interpreted as being gap members as the pigments are within the gaps between the dielectric molecules, as claim 32 provides no structural limitations on the gap members other than their being contained in the dielectric material.

Applicant argues that the Aoki reference fails to teach or suggest gap members to define the interval between the first and second substrates. Rather, the applicant argues, Aoki teaches partition walls (page 11).

However, the partition walls of Aoki are disposed at locations corresponding to boundaries between and excluding the centers of the discharge cells, separate the first and second substrates and furthermore define the interval between the substrates (Figure 2). The applicant's claims do not structurally differentiate the gap members of the claimed invention from the barrier ribs of Aoki. Therefore the examiner maintains the rejection of record.

Applicant argues that the applicant's admission of the prior art fails to teach or suggest gap members of the present invention (page 12).

However, the barrier ribs of the applicant's admission of the prior art are disposed at locations corresponding to boundaries between and excluding the centers of the discharge cells, separate the first and second substrates and furthermore define the interval between the substrates (Figure 15). The applicant's claims do not structurally differentiate the gap members of the claimed invention from the barrier ribs of the applicant's admission of the prior art. Therefore the examiner maintains the rejection of record.

Applicant attempts to differentiate the claimed invention from the prior art of record by stating that "the present invention achieves the effect that 'the interval between the first and second substrates is accurately determined'" (page 12). This limitation is not recited in any of the claims, nor does it contain structural detail that would overcome the rejections of record.

Finally, the applicant argues that the references of the prior art fail to teach or suggest the claimed invention because they lack gap members in locations corresponding to boundary areas between and excluding the center areas of the discharge cells (page 12). The references of the prior art all disclose gap members formed between the discharge cells and outside at least part of an area of the discharge cells that is in the center of the cells. Therefore the rejections of record are maintained.

Conclusion

23. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (571) 272-2455. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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PRIMARY EXAMINER